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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/853,044	05/11/2001	Sergey Doudnikov	CIT/K-146	5077

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EXAMINER

PATEL, SHEFALI D

ART UNIT	PAPER NUMBER
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2624

DATE MAILED: 12/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/853,044	DOUDNIKOV ET AL.	
	Examiner	Art Unit	
	Shefali D. Patel	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 November 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4-8 and 12-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-3 and 9-11 is/are allowed.
- 6) ☒ Claim(s) 4-8, 12-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The amendment was filed on November 8, 2006 along with the correction to the amendment filed on November 6, 2006.

Response to Arguments

2. Applicant's arguments, see Remarks on page (10-11), filed on November 6, 2006, with respect to claim 1 have been fully considered and are persuasive. The rejection of this claim has been withdrawn.
3. Applicant's arguments filed on November 6, 2006 (pages 12-13) have been fully considered but they are not persuasive.

Applicants argue on page 12 stating:

"In addition, the Examiner asserts that Woodgate et al. discloses a microlens array for synthesizing the at least three two-dimensional microimages and regenerating them in a three-dimensional image of a scene, in Fig. 4. However, Applicants submit that this is an improper 102 rejection in that the Examiner fails to specifically identify where in the cited reference each and every limitation is disclosed or suggested. Further, Fig. 4 in Woodgate et al. merely discloses spatial light modulators... This is not a microlens for synthesizing at least three two-dimensional microimages and regenerating them in a three-dimensional image of a scene, as recited in the claims of the present application. Woodgate et al. does not disclose or suggest a microlens array for synthesizing two-dimensional microimages, or a microlens array regenerating the microimages in a three-dimensional image of a scene."

The examiner respectfully disagrees.

It is clear from Figure 4 of Woodgate that element 12 "synthesizes" and element 14 "regenerates". Please see col. 4 lines 43-49. Woodgate et al. does not merely disclose first and second lenticular screens 12 and 14 – these screens acting as an angular amplifying element used as an output element, then output lobes are generated by the second lenticular screen 14 enhancing the total viewing cone of the display. Woodgate also discloses microlens for synthesizing at least three two-dimensional microimages as stated in the previous office action at col. 5 lines 1-10. Also, the microlenses are illustrated in Figure 4 and Figure 6, col. 5 lines 22-29.

Applicants argue on page 13 stating:

“...as noted previously, these portions merely disclose that the position of the source of illumination may be moved vertically in accordance with the movement of the observer and that if the observer's head is tilted the image has to be modified in order to maintain the 3D autostereoscopic effect. This is not a viewing adjust engine for adjusting a viewing zone of the three-dimensional image by moving the at least three microimages in accordance with a signal input from the head position detector, as recited in the claims for the present application. Woodgate et al. does not disclose or suggest a viewing adjust engine. Further, Woodgate does not disclose or suggest a viewing adjust engine adjusting a viewing zone in accordance with a signal input from the head position detector. Woodgate et al. merely relates to moving the position of a source of illumination and tilting the source of illumination.”

The examiner respectfully disagrees.

Woodgate discloses viewing adjusting zone at col. 5 lines 1-10, “the image has to be modified in order to maintain the 3D autostereoscopic effect...so as to compensate for the change in the angle subtended at the observer's eyes.” The head position detector is disclosed at col. 6 lines 22-49.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 4-8 and 12-22 are rejected under 35 U.S.C. 102(e) as being anticipated by Woodgate et al. (hereinafter, “Woodgate”) (US 6,014,164).

With regard to **claim 4** Woodgate discloses an aspectogram comprising at least three two-dimensional microimages of a scene (Figure 4, elements 12 and 14 and col. 3 lines 28-42); a microlens array for synthesizing the at least three two-dimensional microimages and regenerating them in a three-dimensional image of a scene (see Figure 4, col. 3 lines 34-42, 51-54 and 61-63); a head tracking system for tracing movement of an observer head that observes the three-dimensional image, in real time (tracking detector 34, col. 6 line 44); a head position detector for calculating a position of the observer

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head traced by the head tracking system (col. 6 lines 22-34; col. 8 line 66 to col. 9 lines 1-12); and a viewing adjust engine for adjusting a viewing zone of the three-dimensional image by moving the at least three microimages in accordance with a signal input from the head position factor (col. 4 line 64 to col. 5 lines 1-9).

With regard to **claim 5** Woodgate discloses a device, which regenerates the at least three microimages of the scene in accordance with the signal input from the head position detector to compensate distortion of the three-dimensional image (col. 4 line 64 to col. 5 lines 1-9).

With regard to **claim 6** Woodgate discloses the apparatus of claim 5, wherein the regenerated microimages are movable by the viewing adjust engine to form a new viewing zone centered relative to the moved observer head (the angle is being adjusted at col. 5 lines 1-10).

With regard to **claim 7**, Woodgate discloses all of the claimed subject matter as already discussed above in claim 4 and the arguments are not repeated herein, but are incorporated by reference.

Claim 8 recites identical features as claim 6. Thus, arguments similar to that presented above for claim 6 is equally applicable to claim 8.

With regard to **claim 12** Woodgate discloses a system for displaying a three-dimensional image of a scene that is generated via an aspectogram comprising at least three two-dimensional images of the scene as disclosed above in claims 4 and 7 and the arguments are not repeated herein, but are incorporated by reference.

With regard to **claim 13** Woodgate discloses the detector comprising a head tracking system (col. 6 line 44), which traces movement of the observer head in real time, and a head position detector for calculating the position of the observer head traced by the head tracking system (col. 6 lines 22-34; col. 8 line 66 to col. 9 lines 1-12).

With regard to **claim 14** Woodgate discloses a viewing adjust engine that adjusts the viewing zone of the three-dimensional image by moving the at least three two-dimensional images of the scene based on the position signal (col. 4 line 64 to col. 5 lines 1-9).

With regard to **claim 15** Woodgate discloses a device that compensates for distortion by regenerating the at least three two-dimensional images of the scene based on the position signal (col. 8 line 66 to col. 9 lines 1-12).

Claim 16 recites identical features as claims 14-15. Thus, arguments similar to that presented above for claims 14-15 are equally applicable to claim 16.

With regard to **claim 17** Woodgate discloses the detector detecting the position of the observer by tracking the observer's head (col. 6 lines 22-34 and col. 8 line 66 to col. 9 lines 1-12).

With regard to **claim 18** Woodgate discloses a method of manipulating a three-dimensional image of a scene that is generated via an aspectogram comprising at least three two-dimensional images of the scene (Figure 4), comprising: determining a position of an observer of the three-dimensional image (col. 6 lines 22-34); and manipulating the two-dimensional images of the scene based on the determined position of the observer (col. 8 line 66 to col. 9 lines 1-12).

Claim 19 recites identical features as claim 17. Thus, arguments similar to that presented above for claim 17 is equally applicable to claim 19.

Claim 20 recites identical features as claim 14. Thus, arguments similar to that presented above for claim 14 is equally applicable to claim 20.

Claim 21 recites identical features as claim 15. Thus, arguments similar to that presented above for claim 15 is equally applicable to claim 21.

Claim 22 recites identical features as claims 20-21. Thus, arguments similar to that presented above for claims 20-21 are equally applicable to claim 22.

Allowable Subject Matter

6. Claims 1-3 and 9-11 are allowed.

The instant invention defines a method and an apparatus for displaying a three dimensional image. The claimed invention distinguishes over the prior art by the manner in which the compensating distortion of said three-dimensional image by manipulating aspectogram comprising the at least three two-dimensional microimages of the scene in accordance with a signal input from the detector wherein the apparatus synthesizes the aspectogram comprising the at least three two-dimensional microimages of the scene and regenerates them in the three-dimensional image of the scene. The claimed combination allows for improving a method of displaying a three-dimensional image of a scene.

This type of method and an apparatus is conventional in the art. However, the prior art of record fails to teach a detector for tracing movement of an observer head that observes a three-dimensional image, in real time and detecting a position of the observer head; and compensator, the compensator capable of adjusting a viewing zone of the three-dimensional image that is synthesized from at least three two-dimensional microimages of a scene and compensating distortion of said three-dimensional image by manipulating aspectogram comprising the at least three two-dimensional microimages of the scene in accordance with a signal input from the detector wherein the apparatus synthesizes the aspectogram comprising the at least three two-dimensional microimages of the scene and regenerates them in the three-dimensional image of the scene. These elements in combination with all of the other elements of the claims are not taught or fairly suggested in the prior art of record. The dependent claims 2-3 and 10-11 are allowed for the same reasons.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shefali D. Patel whose telephone number is 571-272-7396. The examiner can normally be reached on M-F 8:00am - 5:00pm (First Friday Off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jingge Wu can be reached on (571) 272-7429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JINGGE WU
PRIMARY EXAMINER

Shefali D Patel
Examiner
Art Unit 2624

sdp